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# New Species of *Stemmadenia* and *Tabernaemontana* (Apocynaceae) from Costa Rica, Panama, and Colombia

J. Francisco Morales

Instituto Nacional de Biodiversidad (INBio), Apto. 22-3100, Santo Domingo de Heredia,  
Costa Rica

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**ABSTRACT.** *Stemmadenia abbreviata* and *S. simulans* are described from Costa Rica and Panama, and *Tabernaemontana leeuwenbergiana* is described from Colombia.

*Stemmadenia* Benthham is a small genus of 10 species, confined primarily to Central America, although a few species occur in northern South America (Leeuwenberg, 1994). The genus is closely allied to *Tabernaemontana* L., but it is readily distinguished by its corolla tube with five staminal ridges below the anthers within. The presence of one corona, composed of five epistaminal ridges, within the corolla tube in some species of *Stemmadenia* and *Tabernaemontana* is an unusual character within the tribe Tabernaemontaneae. In *Stemmadenia* the corona is found in most species (e.g., *S. alfari* (Donnell Smith) Woodson, *S. donnell-smithii* (Rose) Woodson, *S. litoralis* (Kunth) L. Allorge), while in *Tabernaemontana* it is rarely present (e.g., *T. columbiensis* (L. Allorge) Leeuwenberg).

Study of material included among specimens received as gifts for identification revealed an undescribed species of *Tabernaemontana* from Colombia. In addition, while writing an account of the genus *Stemmadenia* for the *Manual to the Plants of Costa Rica*, two new species were discovered; they are described below.

***Stemmadenia abbreviata*** J. F. Morales, sp. nov.

TYPE: Costa Rica. Heredia: in forest along Río Peje, about 1 km S of La Selva (new property) S boundary, 13 Apr. 1982 (fl), Hammel 11680 (holotype, INB; isotype, DUKE).

Arbuscula vel frutex 2 m alta, ramis furcatis, teretibus. Folia 5–14.5 × 1.5–6 cm, elliptica, glabra, membranacea, apice acuminata. Calycis segmenta 11–18 × 6–8 mm, tubo corollae 21–23 mm, salverformi, lobis 6–7 × 4 mm, antheris 3–4 mm. Fructus ignotus.

Shrub or small tree 2 m high; branchlets terete to subterete, forked, glabrous. Leaves petiolate; petiole glabrous, 3–9 mm long; blade 5–14.5 × 1.5–6 cm, membranaceous, elliptic, acuminate at the

apex, cuneate at the base, entire, glabrous on both sides, with 8–10 pairs of upcurved secondary veins. Inflorescence pedunculate, 3–7-flowered, somewhat agglomerate, glabrous; peduncle 3–5 mm long, with several bracts; pedicels 5–9 mm; bracts scale-like, 2–3 mm; sepals white outside, green inside, foliaceous, erect, ovate to narrowly ovate, 11–18 × 6–8 mm, acute, subequal, glabrous, bearing 6–7 col-eters inside, entire; corolla salverform, the tube white, lobes pale yellow, with 5 narrow staminal ridges 0.5 mm wide, corona composed of five epistaminal ridges ca. 0.5 mm wide above the insertion of the stamens; tube 21–23 mm long, almost cylindrical, ca. 3 mm wide above the base, twisted around the anthers; lobes obliquely obovate, 5–7 × 4 mm, obtuse, somewhat spreading to reflexed; stamens with apex 8–9 mm below mouth of corolla tube, inserted 7–8 mm from the base; anthers narrowly oblong, 3–4 × 1 mm, apex acuminate, sagittate at the base; ovary ovoid, 2–2.5 mm, glabrous, with a disk-like, ring-shaped thickening less than 1 mm high, adnate to base; style 5–6 mm; pistil head 1 mm. Fruits unknown.

Known only from the type collection, at 100–300 m. It flowers from March to May.

In Costa Rica, the type collection has been referred to *Stemmadenia robinsonii* Woodson, but *S. abbreviata* is easily recognized by its narrow salverform corolla, cylindrical and straight tube, with the lobes 5–7 mm long. The specific epithet refers to the short and inconspicuous corolla lobes.

***Stemmadenia simulans*** J. F. Morales & Q.

Jiménez, sp. nov. TYPE: Costa Rica. San José: Cantón de Puriscal, Zona Protectora La Cangreja, Faja Costeña del Valle de Parrita, Mastatal de Puriscal, Río Negro, 290–320 m, 3 Mar. 1994 (fl), J. F. Morales, D. A. Smith & G. Smith 2414 (holotype, INB; isotypes, B, BR, C, CAS, CR, F, G, GH, INB, K, MEXU, MICH, MO, NY, P, UPS, US, USF, W, WAG, WIS, Z). Figure 1.



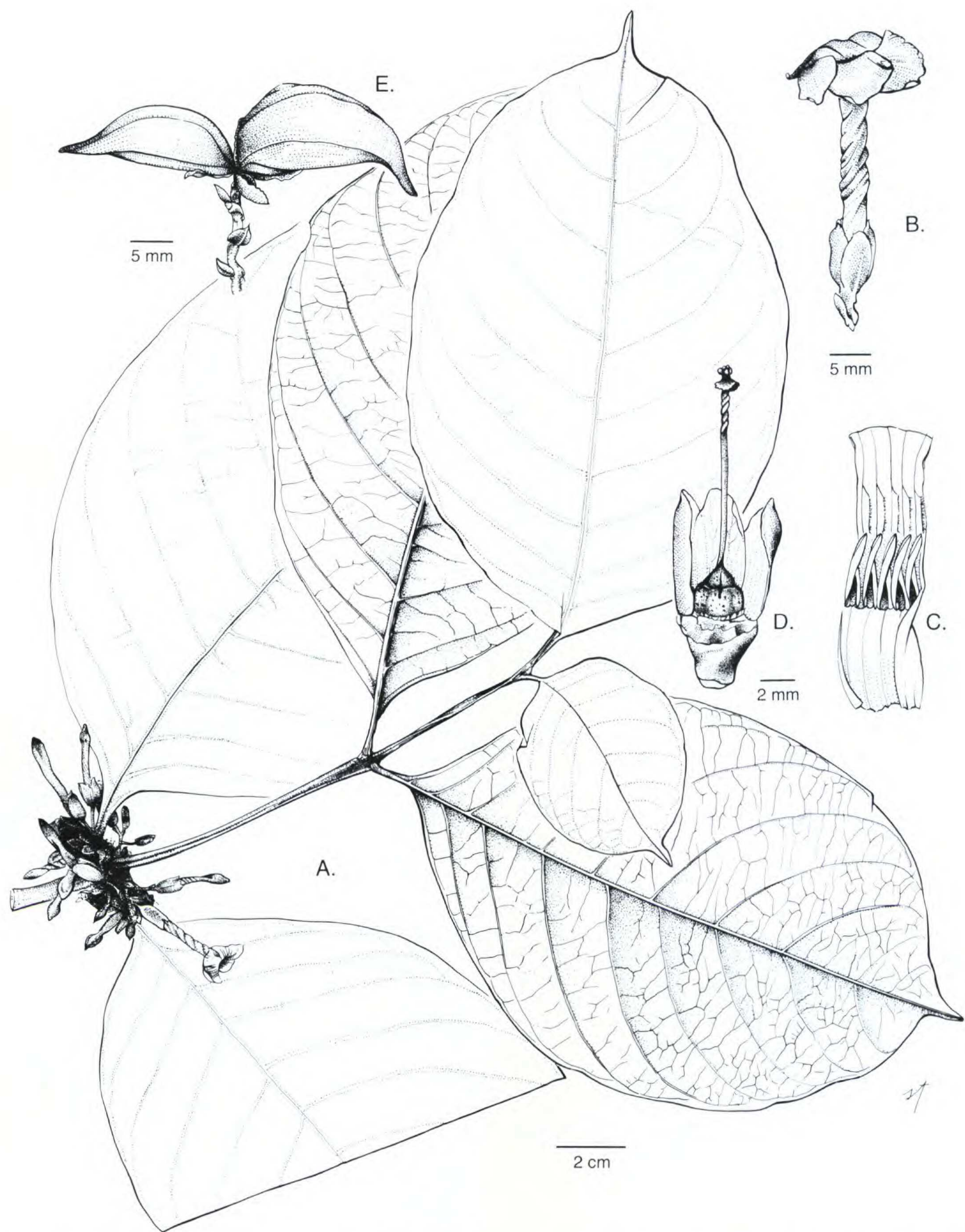


Figure 1. A–E. *Stemmadenia simulans* J. F. Morales & Q. Jiménez (*Morales et al.* 2414, INB). —A. Habit. —B. Calyx and corolla. —C. Opened corolla tube. —D. Pistil with sepals. —E. Fruit.



Arbuscula vel frutex 1–1.5 m alta, ramis furcatis, teretibus. Folia 8–37 × (3.2–)5–14 cm, elliptica vel obovata, glabra, membranacea, apice acuminata. Calycis segmenta 4–6 × 4–4.5 mm, tubo corollae 26–28 mm, salverformi vel anguste infundibuliformi, lobis 9–11 × 5–6 mm, antheris 5–6 mm. Fructus 22–32 × 9–12 mm.

Shrub or small tree 1–1.5 m high; branchlets terete to subterete, forked, glabrous. Leaves petiolate; petiole glabrous, 5–22 mm long; blade 8–37 × (3.2–)5–14 cm, membranaceous, elliptic to obovate; acuminate at the apex, cuneate at the base; entire, glabrous on both sides, with 11–12 pairs of upcurved secondary veins. Inflorescence inconspicuously pedunculate, 17–26-flowered, agglomerate; peduncle 1–2(–4) mm long, with several bracts; pedicels 4–10 mm; bracts scale-like, 1–2 mm, persistent; sepals green-yellowish, erect, unequal, ovate, 4–6 × 4–4.5 mm, obtuse, glabrous, bearing 5–7 collectors inside, entire; corolla yellow, salverform to very narrowly infundibuliform, with 5 narrow staminal ridges ca. 1 mm wide, corona composed of five epistaminal ridges above the insertion of the stamens; tube 26–28 mm long, almost cylindrical, ca. 3 mm wide above the base, twisted around the anthers; lobes obliquely obovate, 9–11 × 5–6 mm, obtuse, spreading to somewhat reflexed; stamens with apex 13–15 mm below mouth of corolla tube, inserted at 9–11 mm from the base; anthers narrowly oblong, 5–6 × 1 mm, apex acuminate, sagittate at the base; ovary ovoid, ca. 2 mm, glabrous, with a disk-like, ring-shaped thickening 1 mm high, adnate to the base; style 6–7.5 mm; pistil head 1 mm. Fruit of 2 separate mericarps; mericarps green-yellow, obliquely ellipsoid or pod-like, 22–32 × 9–12 mm, recurved, apiculate, sometimes caudate, with lateral ridges, smooth; aril orange. Seeds 7–8 × 3 mm, with longitudinal grooves.

This species is known from wet forests in Costa Rica and northwestern Panama, from 290 to 1000(–1400) m. It flowers from March to May, and fruits from July to September. Somewhat related to *Stemmadenia pauli* Leeuwenberg, it is easily recognized by its agglomerate 17–26-flowered inflorescences, conspicuous and persistent bracts, and persistent and shorter sepals.

The specific name recalls that *Stemmadenia simulans* looks like a species of *Tabernaemontana*. In fact, two collections of this species (*Busey 547* and *Gómez 19612*) with immature flowers were previously identified as *Tabernaemontana columbiensis*. However, the deep yellow corolla and the five narrow staminal ridges below the anthers within the corolla tube, confirm that this species should be included within *Stemmadenia*.

*Stemmadenia simulans* is morphologically very

similar to *Tabernaemontana columbiensis*; the latter is easily separated, however, by its floral characters (larger sepals and inflorescences, persistent and conspicuous floral bracts), and smaller fruits (22–32 mm vs. 35–55 mm in *T. columbiensis*) and seeds (7–8 mm vs. 9–12 mm).

*Paratypes.* COSTA RICA. **Puntarenas:** Fila de Cal, between Las Cruces and Nelly, *Gómez 19612* (MO). **San José:** Zona Protectora La Cangreja, Santa Rosa de Puriscal, *Morales 278* (INB); Mastatal de Puriscal, Río Negro, *Morales 3128* (INB, MO); Zona Protectora La Cangreja, Mastatal de Puriscal, *Ramírez et al. 44* (CR, INB, MO); Mastatal de Puriscal, *Zamora et al. 1271* (INB, MO). PANAMA. **Chiriquí:** Burica Península, San Bartolo Límite, 20 km W of Puerto Armuelles, *Busey 547* (MO).

***Tabernaemontana leeuwenbergiana*** J. F. Morales, sp. nov. TYPE: Colombia. Nariño: trail from La Planada to Pielapi, wet lower montane cloud forest, 1600–1800 m, 22 July 1988 (fl), *Gentry et al. 63607* (holotype, INB; isotype, MO).

Arbuscula vel frutex, 3–4 m alta, ramis furcatis, teretibus. Folia 41–45 × 26–29 cm, elliptica, glabra, membranacea, apice acuminata. Calycis segmenta 3–4 × 2–3.5 mm, tubo corollae 21–24 mm, salverformi, lobis 8–12 × 5–6 mm, antheris 5–6 mm. Fructus ignotus.

Shrub or small tree, 3–4 m high; branchlets terete to subterete, glabrous, forked. Leaves petiolate; petiole glabrous, 26–30 mm long; blade membranaceous, 41–45 × 26–29 cm, broadly elliptic; acuminate at the apex, cuneate at the base; entire, glabrous on both sides, with 19–21 pairs of upcurved secondary veins; tertiary venation reticulate. Inflorescence pedunculate, 18–23-flowered, corymbose, lax; peduncle 24–26 mm long, with several bracts; pedicels (10–)15–20 mm; bracts few, scale-like, 2–3 mm; sepals erect, ovate, 3–4 × 2–3.5 mm, obtuse to rounded, glabrous, bearing many collectors inside, entire; corolla salverform, white, glabrous; tube 21–24 mm long, almost cylindrical, ca. 3 mm wide above the base, somewhat twisted around the anthers; lobes obliquely obovate, 8–12 × 5–6 mm, obtuse, somewhat spreading; stamens with apex 5–6 mm below mouth of corolla tube, inserted at 12–13 mm from the base; anthers narrowly triangular, 5–6 × 1 mm, apex acuminate, sagittate at the base; ovary ovoid, 2–2.5 mm, glabrous, with a disk-like, ring-shaped thickening 1 mm high, adnate to base; style 5–6 mm; pistil head 1 mm. Fruits unknown.

This species is known only from the type locality, at elevations of 1600–1800 m. It resembles *Tabernaemontana maxima* Markgraf, but differs by its conspicuously petiolate leaves (26–30 mm vs. 1–4



mm), shorter sepals (3–4 mm vs. 6–12 mm), and corolla lobes (8–12 mm vs. 4–5 mm). From *T. markgrafiana* J. F. Macbride it differs by its broadly elliptic leaves (vs. elliptic to narrowly elliptic in *T. markgrafiana*), lax inflorescence (vs. dense and agglomerate), and longer sepals (3–4 mm vs. 2–3 mm).

*Tabernaemontana leeuwenbergii* is named after Anthony (Toon) Leeuwenberg (WAG), in recognition of his extensive taxonomic work in the tribe Tabernaemontaneae, especially in the genus *Tabernaemontana*, and for his encouragement of my studies on Apocynaceae.

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#### Literature Cited

Leeuwenberg, A. J. M. 1994. Pp. 213–450 in *A Revision of Tabernaemontana* 2. The New World Species and *Stemmadenia*. Royal Botanic Gardens, Kew.